

USSR

UDC: None

BOROVKOV, A. A., Corresponding Member of the USSR Academy of Sciences, and  
PECHERSKIY, Ye. A.

"Criteria of Weak Convergence of Nonnegative Measures, and  
 $\sigma$ -Topological Spaces"

Moscow, Doklady Akademii Nauk SSSR, 1 January 1973, pp 18-20

Abstract: Let  $(X, \mathcal{A})$  be an arbitrary measurable space,  $P_0$  be a limited measure in it, and  $\Pi = \{P_\theta\}_{\theta \in \Theta}$  be a network of measures in  $(X, \mathcal{A})$ . Again, let  $\mathcal{F}$  be some family of real, measurable functions in  $X$ . The purpose of this article is to formulate functions sufficient for the weak convergence of the "distribution functions"

$$P_\theta \{f(x) < t\} \Rightarrow P\{f(x) < t\}$$

for all  $f \in \mathcal{F}$ . As the more convenient of two possible ways of solving this problem, the authors choose that of  $\sigma$ -topological spaces introduced in earlier articles: (Aleksandrov, A. D., Matem. sborn., 8, 1940, p 302; 9, 1941, p 563; 13, 1943, p 169).

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USSR

UDC 547.913.2:668.5

PANOZISHVILI, K., ZOL'NIKOVA, N. V., and BOROVKOV, A. V., All  
Union Scientific Research Institute of Agricultural Micro-  
biology

"Verrukarin A from Dendroochium Toxicum"

Tashkent, Khimiya, Prirodnykh Soyedineniy, No. 2, 1972, pp 245

Abstract: Using the activated charcoal adsorption method a  
toxic fraction was isolated from the Dendroochium toxicum  
culture. A compound was isolated from the toxic fraction by  
Al<sub>2</sub>O<sub>3</sub> column chromatography with melting point >330° C. On  
the basis of its physico-chemical properties, IR and UV data  
it was identified as verrukarin A.

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Acc. Nr.: AP0029428

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, B Vol 15, Nr 1, pp 19-21

ANTIBIOTIC PROPERTIES OF 2,4-DIACETYLFLUOROGLUCINE PRODUCED BY  
PSEUDOMONAS FLUORESCENS, STRAIN 26-o

Reddi, T.K.K.; Borovkov, A.V.

National Institute for Agricultural Microbiology, Leningrad

2,4-Diacetylfluoroglucine is a metabolite of a soil bacterium Pseudomonas fluores-  
cens. It has a high antibiotic activity against grampositive bacteria and actinomycetes.  
Gramnegative bacteria, fungi and yeasts were not or slightly sensitive to the substance.

*gm*

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REEL/FRAME

13681024

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USSR

BOROVKOV, I. I., Candidate of Economic Sciences, and KONOVALOVA, N. M.,  
Engineer-Economist, Tashkent Zonal Scientific Research Institute of Experimental  
Planning of the USSR Academy of Construction and Architecture

"Method of Complex Economic Appraisal of Antiseismic Constructive Measures in  
Residential Buildings"

Tashkent, Stroitel'stvo i Arkhitektura Uzbekistana, No 9, Sep 72, pp 10-12

Abstract: In the appraisal of antiseismic constructive measures in residential buildings, the distribution of overhead costs between individual types of construction-assembly work proportionally to the labor-consuming capacity of each of this kind of work is considered to be more in the right way than their at present practiced rating by planned expenditures. The labor-consuming capacity of antiseismic measures, as the arrangement of monolithic ferroconcrete belts, reinforcement of layings, welding of fittings and details, is always higher than the labor-consuming capacity of the erection of the object upon the whole. The shares of antiseismic measures of brick and large-panel type buildings in the planned cost of direct expenditures and total labor expenditures are discussed. Coefficients are indicated which consider the labor-consuming nature of antiseismic measures which have to be taken into account in their planned cost. These coefficients can be used in the capacity of constant indices for a more

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USSR

BÓROVKOV, I. I. and KONOVALOVA, N. M., Stroitel'stvo i Arkhitektura  
Uzbekistana, No 9, Sep 72, pp 10-12

exact definition of the cost of antiseismic measures of 4-story residential  
buildings (series 76 and 77) designated for series construction in Middle Asia.  
The complex reduced expenditures for antiseismic constructive measures of  
residential buildings can be determined with the help of a discussed formula.  
Four tables, three biblio. refs.

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USSR

BOROVKOV, I. S., SANKOVICH, V. M.

"Increasing the Flow Rate of the Working Gas in a Molecular Aerodynamic Tube by Adding a Lighter Gas"

Uch. Zar. Tsentr. Aerogidrodinam., In-ta., [Scientific Writings of the Central Aerohydrodynamic Institute], 1971, 2, No 3, pp 52-58. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1B272 by O. K. Razanov).

Translation: The most probable velocities for molecules of the heavy and light gases are calculated when pure gases and their gas mixtures are used in a molecular tube. The parameters of the molecular aerodynamic tube used are: diameter of critical cross-section of sonic nozzle 1.08 mm, distance between this cross-section and input cross section of first skimmer 25 mm distance between input cross-sections of first and second skimmers 47 mm. Argon and helium were used as the pure heavy and light gases, mixtures of argon and helium of various compositions were used as the gas mixtures. The pressure in the working chamber did not exceed  $10^{-5}$  mm hg. The device for determination of the most probable molecular flow velocities was based on the stroboscopic principle: a rim 250 mm in diameter, rotated by an electric motor, had an even row of slits 2 mm wide and 5 mm high around its circumference and converted the continuous flow of molecules into a pulsating flow. The flux of molecules was measured by a detector with a mass spectrograph. The dependences of the number of molecules

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Metrology, Mapping, Surveying, Graphics

USSR

UDC 531.787.081(083.76)

BAKHVALOVA, V. V., ZOLOTYKH, YE. V., BOROVKOV, V. M.

"Special State Standard for a Unit of Pressure in the  $2,500 \cdot 10^5$  to  $15,000 \cdot 10^5$  Pa Range"

Moscow, Izmeritel'naya Tekhnika, No 11, 1973, pp 3-4

Abstract: A brief description is presented of the special standard for a unit pressure in the  $2,500 \cdot 10^5$  to  $15,000 \cdot 10^5$  Pa range. The metrologic characteristics of the standard contains a check circuit in the range to  $40,000 \cdot 10^5$  Pa and the basic measures in the plan for its introduction are presented. A comparison of the standard with foreign manometers is made. The periodic monitoring of the variability of the standard parameters is described, the measurement equation is given, and the transfer of the measure of the unit of pressure is described. The transfer is made using resistance manometers with extrapolation of the calibration curves.

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USSR

UDC 621.385.052.26:621.385.63

*B*  
BOROVKOV, YU. I., BALININ, YU. A., KATS, A.M.

"Investigation Of The Structure Of An Electron Beam In A Dynamic Section By The Method Of An Iris With A Small Hole"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology--Collection Of Works), Saratov, 1970, pp 155-160 (from RZh--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6a22)

Translation: A method is described for the use of an iris with a small hole for an analysis of the structure of an electron beam traveling-wave tube in a dynamic regime. Measurements were conducted in the flight channel and also in the collector area. The possibilities of the method are evaluated. Some experimental results are presented. Summary.

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USSR

UDC 666.763.5:539.374

BOROVKOVA, L. B., LUKIN, YE. S., and POLUBOYARINOV, D. N., Moscow Institute of Chemical Technology imeni D. I. Mendeleev

"Change in the Structure and Characteristics of Industrial Aluminosilicate Refractory Materials at Extended High Temperatures"

Moscow, Ogneupory, No 6, 1971, pp 27-30

Abstract: The subjects of the study were metals and the variations in their structure and characteristics produced after long service under high-temperature conditions in air. Made of 38, 62, and 78%  $Al_2O_3$ , and designated by type numbers D-B, V-B, and 107, respectively, the metals were produced by the Semiluksk Plant. A short explanation of the preparation of the specimens is given; they were subjected to heating at 1350°C for 25, 100, and 300 hours, and at 1500°C for 25, 50, and 100 hours in air in an oven with carborundum heaters. The microstructure of transparent slices of the metal was studied, and the state of the crystalline phases was determined by x-ray analysis. Results of the observations are given in tabular form. It is concluded that the change in structure of the aluminosilicate specimens is much less than in pure oxide materials, and that the characteristics of the specimens change only slightly under the stress of heat.

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### Refractory Materials

USSR

UDC 666.764.1.001.5

BOROVKOVA, L. B., LUKIN, YE. S., MAYYER, A. A., and POLUBOYARINOV, D. N., Moscow Institute of Chemical Technology imeni I. D. Mendeleev

"Changes in Structure and Certain Properties of Industrially Made Basic Refractories on Precipitation Hardening"

Moscow, Ogneupory, No 8, 70, pp 27-32

Abstract: Data is presented on changes in the structure of ordinary magnesite (MG-1) and periclase spinel refractories (M-9N, PShS-4) produced at the "Magnezit" plant and on some of their properties following long-term heating at high temperatures. The precipitation hardening was performed at 1350°C for 25, 100, and 300 hours, at 1500°C for 25, 50, and 100 hours and at 1700°C for 25 hours. At 1350 and 1500°C, the heating was done in open air in a furnace equipped with carborundum heaters while at 1700°C -- heating was done in a furnace with graphite heaters in a helium atmosphere. The microstructure of the test material was studied on transparent microsections and the composition of the crystalline phases was analyzed by x-ray phase analysis. Structural patterns  
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BOROVKOVA, L. B., et al., Ogneupory, No 8, 70, pp 27-32

of all three refractories are shown in the original article. The effect of heat treatment on the properties of the refractories was assessed by changes in apparent density, compressive strength, buckling, and creep. Both the strength and refractoriness-under-load showed improvements. The strength of periclase spinel refractories subjected to precipitation hardening at 1350-1700°C decreased, while both buckling and creep deformation were at a level close to that of the initial material.

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USSR

UDC 576.858.095.5

DREYZIN, R. S., BIKHNOVICH, E. M., BOROVKOVA, N. M., and PONOMAREVA, T. I.,  
Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences  
USSR

"Characteristics of Replication of Five Serotypes of Rhinoviruses and Their  
Antigenic Relationships"

Moscow, Voprosy Virusologii, No 5, 1971, pp 565-569

Abstract: The cycles of replication of rhinovirus strains B632, 1059, 33342, 56822, and Feb in a culture of HeLa cells last about 6 to 7 hours. The maximum titers of infectious virus are found after 9 to 12 hours. Infectious virus appears in the culture fluid of all strains 2 to 3 hours later than in the cells. The cytopathic effect is not manifested in the infected cells until 1 or 2 hours after the appearance of the virus in the cell phase, i.e., after 8 hours of cultivation. Antigens of strains 1059, 56822, and B632 can be found in a subculture of human embryo fibroblasts after 4 to 6 hours of cultivation and those of the Feb strain after 10 to 12 hours by using the indirect immunofluorescence method. In all stages of infection the antigens are concentrated in the cytoplasm. Analysis of antigenic relationships using the indirect immunofluorescence method shows a lack of common antigens in  
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USSR

DREYZIN, R. S., et al., Voprosy Virusologii, No 5, 1971, pp 565-569

strains 1059, 56822, B632, and Feb as well as strict type-specificity of immune sera.

2/2

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Radiation Chemistry

USSR

UDC 541.15

BOROVKOVA, V. A., BAGDASAR'YAN, Kh. S., CHEPEL', D. V., SHEMAROV, F. V.,  
Institute of Physical Chemistry imeni L. Ya. Karpov

"Pulse Radiolysis of Polymethylmethacrylate Containing Aromatic Compounds"

Moscow, Khimiya Vysokikh Energiy, Vol 5, No 4, Jul-Aug 71, pp 337-339

Abstract: The formation of ions during pulse radiolysis of solutions of triphenylamine, biphenyl, naphthalene in polymethylmethacrylate (M) at 300°K was investigated. The spectrum of the pure polymer is at least partially due to captured electrons; in the presence of  $\text{CCl}_4$  its optical density decreases. Triphenylamine solutions exhibit the spectrum of its cation-free radical ( $\text{A}^+$ ). The spectra obtained in the presence of biphenyl and naphthalene are also due to the cation-free radicals of the admixtures. During radiolysis of polymethylmethacrylate for periods shorter than  $10^{-6}$  sec, cation-free radicals of the admixture are formed:  $\text{M}^+ + \text{A} \rightarrow \text{M} + \text{A}^+$ . This process competes effectively with the primary recombination of matrix charges  $\text{M}^+ + \text{e}^- \rightarrow \text{M}$  as a consequence of the electron-acceptor properties of the matrix. Reaction  $\text{A}^+ + \text{e}^- \rightarrow \text{A}^*$  is slow for the same reason. The radiation source was a linear accelerator providing 4 MeV electrons at 4 microsec. pulse duration. The results confirm previously proposed mechanisms of polymer radioprotection.

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USSR

UDC 669.71.017:539.3/5.01

KUTAYTSEVA, Ye. I., FILIPPOVA, Z. G., and BOROVOV, S. A.

"The Effect of Thermomechanical Processing on Properties of the V96ts Alloy"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,  
pp 29-33, resume

Translation: The effect of thermomechanical processing on the properties of the V96ts high-strength alloy was investigated. A positive effect of the plastic deformation on the mechanical properties of the alloy was established. Three figures, two tables.

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BOROVY V. Ya.

18.10.1973

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18.10.1973

Borovy, V. Ya., Kharchenko, V. I. Experimental investigation of flow and heat exchange in the separation zone on an axisymmetric body with a conic shield. MZhG, no. 3, 1972, 35-40.

The results are presented of an experimental investigation of the distribution of pressure and heat exchange on the surface of a conic shield mounted on a cylinder with a conic nose. The shield inclination angle was varied from 10 to 60°, the ratio of the cylinder length to the shield base diameter was  $l/D = 0.5-2$ . The experiments were conducted at Mach number  $M_{\infty} = 5$ , pressure  $p_{\infty} = 8$  bar, stagnation temperature  $T_0 = 400-773^\circ K$ , and a Reynolds number, calculated on the basis of the total length model,  $Re = 0.6 \times 10^6$ .

Shadow photographs show that on a model with an angle of shield inclination  $\varphi = 30^\circ$  and an angle of attack  $\alpha = 0$ , a separation zone develops, with shock wave formation at points of separation and attachment. At values of  $\varphi \geq 30^\circ$ , the laminar mixing layer in the stall zone becomes turbulent, and separation lines are clearly detected on the basis of points applied by washable paint. On a model with  $\varphi = 30^\circ$  at  $\alpha = 10^\circ$ , points applied in the separation zone were practically not washed out at all.

Measurement of change of the angle of inclination of the stall zone to the cylinder generatrix,  $\theta$ , in relation to the cylinder length at  $\alpha = 0$  ( $\varphi = 10, 20, 30^\circ$ ), revealed that with sufficient cylinder length, equal values of angle  $\theta$  ( $4-4.5^\circ$ ) were yielded for all shields; this corresponds to a separation point along the



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UDC 532.526.6.011.6.011.7

BOROVY, V. YA., KHARCHENKO, V. N., Moscow

"Experimental Study of Flow and Heat Exchange in the Separation Zone on an Axisymmetric Body With a Conical Shield"

Moscow, Mekhanika zhidkosti i gaza, No. 2, Mar/Apr 72, pp 35-40

Abstract: An experimental study of the pressure distribution and heat exchange on the surface of a conical shield located on a cylinder with a conical nose is described. The angle of inclination of the shield varied from  $10^\circ$  to  $60^\circ$  and the ratio of the length of the cylinder to the diameter of the base of the shield  $L/D = 0.5-2$ . The experiments were made at  $M_\infty = 5$ , a pressure  $p_0 = 8$  bar, and a stagnation temperature  $T_0 = 400-773^\circ\text{K}$  with the Reynolds number computed on the basis of the overall length of the model  $Re = 0.6 \cdot 10^6$ . Data are presented on the flow in the separation zone based on shadow photography along with data on the pressure distribution and heat exchange of flows in the shields. Of particular interest was a study of the effect of angle of attack on heat exchange and there is practically no information in the literature on bodies with conical shields.

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USSR

BOROVY, V. YA., KHARCHENKO, V. N., Mekhanika zhidkosti i gaza, No. 2, Mar/Apr 72, pp

The effect of angle of attack on heat exchange was studied over a wide range of values of  $\alpha$  up to  $30^\circ$  and the results showed that the degree of nonuniformity of the distribution of heat flow over the length of the generatrix does not increase with an increase in angle of attack; in many cases it decreases considerably. This is explained by the fact that the length of the separation zone on the windward surface shortens with an increase in the angle of attack and practically the entire shield is covered with a connected flow.

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USSR

UDC 517.521.1

BOROVSKA, T. T., and MOLCHANOV, O. O., Kiev State University

"Condition for the Convergence of the Periodic Solution of One Type of Differential Equation"

Kiev, Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 6, Jun 72, pp 489-493

Abstract: The article finds the condition for the existence and convergence of the stationary periodic solution of the equation

$$K_p \frac{d^p q}{dt^p} + K_{p-1} \frac{d^{p-1} q}{dt^{p-1}} + \dots + K_1 \frac{dq}{dt} + K_0 q + \beta f(q, q') = U_m \sin(\omega t + \varepsilon), (1)$$

$$f(q, q') = q^{2n-1} q'^{2m} \text{ and } f(q, q') = q^{2n} q'^{2n-1},$$

where

$$K_p, K_{p-1}, K_{p-2}, \dots, K_0 - \text{const.}$$

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USSR

BOROV'S'KA, T. T., and MOICHANOV, O. O., Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 6, Jun 72, pp 489-493

The solution of equation (1), given  $f(q, q') = q^{2n-1} q'^{2m}$ , is found in the form of a formal power expansion of parameter  $\beta$

$$q = q_0 + \beta q_1 + \beta^2 q_2 + \beta^3 q_3 + \dots \quad (2)$$

Solution (2) is substituted into equation (1). A criterion is derived which makes it possible to determine the limits of the application of small-parameter methods to study processes in resonance systems described by equations of form (1).

2/2

1/2 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--PREPARATION OF CHROMIUM (III) COMPOUNDS BASED ON THE INTERACTION OF  
SODIUM CHROMATE SOLUTIONS WITH SULFUR DIOXIDE -U-  
AUTHOR-(03)-NOVEL, M.S., HOROVSKIKH, L.A., VILNYANSKIY, YA.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 236-40

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PRODUCTION, CHEMICAL REDUCTION, CHROMIUM COMPOUND,  
HYDROXIDE, SULFUR DIOXIDE, SODIUM CHROMATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1989/1927

STEP NO--UR/0080/70/043/002/0236/0240

CIRC ACCESSION NO--AP0108256

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108256

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE INFLUENCE OF A SERIES OF FACTORS ON THE COMPN. AND STRUCTURE OF PPTS. OF HYDROXIDE COMPOS. OF CR (CR CHROMATES AND HYDROXIDES), WHICH FORM UPON THE REDN. OF CHROMATE SOLNS. BY SO SUB2 GAS, IS STUDIED. THE POSSIBILITY OF AN EFFECTIVE USE OF THE GIVEN METHOD FOR THE RECOVERY OF CHROMATE SOLNS. IN VARIOUS CHEM. PRODUCTS SUCH AS TANNING AGENTS, ELECTROLYTES, CHROMIC OXIDE, ETC. IS SHOWN.

- UNCLASSIFIED

USSR

BOROVSKIKH, Yu. V.

"Characterization of the Normal Distribution by the Property of Stochastic Independence of the Sampling Mean and the High-Order Sampling Central Moment"

Zap. Nauch. Seminarov Leningr. Otd. Mat. In-ta AN SSSR [Writings of Scientific Seminars of Leningrad Division Mathematic Institute, Academy of Sciences, USSR], 1972, Vol 29, pp 51-56 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V180 by D. Chibisov).

Translation: The following theorem is proven: If the sampling mean and  $k$ -th sampling central moment are independent, where  $2 < k < n$ , the sample is normal, except, perhaps, for the case where  $(k-1)!$  is divided by  $n-1$  and at the same time  $(k-1)!$  is divided by  $n$ . The theorem strengthens a result of Yu. V. Linnik (RZhMat, 1970, 9A121).

1/1

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1/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--ORIENTATION DEPENDENCE OF LINE PARAMETERS OF THE CHARACTERISTIC X  
RAY SPECTRUM OF ATOMS OF THE ELEMENTS IN SINGLE CRYSTALS. BASIC LINE

AUTHOR--(02)-BOROVSKIY, I.B., MATYSKIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(1), 63-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SINGLE CRYSTAL, VANADIUM PENTOXIDE, CRYSTAL ORIENTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/1258

STEP NO--UR/0020/70/192/001/0063/0066

CIRC ACCESSION NO--AT0138269

UNCLASSIFIED



2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0138269

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF A CRYSTAL ORIENTATION ON THE PARAMETERS OF THE CHARACTERISTIC K AND L X RAY LINES OF V IN V SUB2 O SUB5 SINGLE CRYSTALS WAS STUDIED BY MEASURING THE WAVELENGTH, MAX. INTENSITY, WIDTH, AND ASYMMETRY INDEX BY USING THE CRYSTAL AS A ROTATING ANODE OF THE X RAY TUBE. THE SPECIMEN IN FORM OF A PLATE WAS CUT OUT FROM V SUB2 O SUB5 SINGLE CRYSTAL ALONG THE TETRAGONAL AXIS A AND FIXED TO THE ANODE SO THAT IT ROTATES (360DEGREES) IN A PLANE PERPENDICULAR TO THE ELECTRON BEAM. IN ALL CASES (WITH THE EXCEPTION OF THE SATELLITE LINE K BETA PRIME PRIME) THE INTENSITY OF THE LINES DECREASES 8-12PERCENT WHEN THE CRYSTAL DIRECTION CHANGES FROM PARALLEL TO PERPENDICULAR TO THE A AXIS. THIS IS ACCOMPANIED BY A SHIFT IN THE INTENSITY MAX. TOWARD THE LONGWAVE REGION AND INCREASE IN THE WIDTH OF THE LINE K BETA SUB1,3 AND A DECREASE IN THE ASYMMETRY INDEX. MEASUREMENTS MADE ON SPECIMENS CUT FROM V SUB2 O SUB5 SINGLE CRYSTAL PERPENDICULAR TO THE A AXIS, REVEALED THAT IN THIS CASE THE PARAMETERS OF K BETA SUB1,3 LINE REMAIN UNCHANGED (CORRESPOND TO THOSE OBTAINED AT THE ANGLE 75DEGREES FOR THE CRYSTAL SPECIMEN CUT ALONG THE A AXIS). THE OBSD. ORIENTATION EFFECT IS EXPLAINED IN TERMS OF THE SPLITTING OF V LEVELS INTO COMPONENTS X, Y, AND Z IN THE CRYSTAL FIELD.  
FACILITY: INST. MET. IM. BAIKOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--LOCAL X RAY SPECTRAL ANALYSIS OF MUTUAL DIFFUSION IN BINARY SYSTEMS  
FORMING CONTINUOUS SERIES OF SOLID SOLUTIONS. III. CONCENTRATION  
AUTHOR-(03)-BOROVSKIY, I.B., MARCHUKOVA, I.D., UGASTE, YU.E.  
COUNTRY OF INFO--USSR **B**  
SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 308-17  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--BINARY ALLOY, DIFFUSION COEFFICIENT, SOLID SOLUTION, X RAY  
SPECTROSCOPY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3003/0341 STEP NO--UR/0126/70/029/002/0308/0317  
CIRC ACCESSION NO--AP0129573  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129573

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERAL LAWS GOVERNING THE  
CONCN. CHANGE OF THE MUTUAL DIFFUSION COEFF. IN BINARY SYSTEMS FORMING A  
CONTINUOUS SERIES OF SOLID SUBSTITUTIONAL SOLNS. ARE EXAMD. THE ANAL.  
OF THE RESP. CURVES IS PERFORMED ON THE BASIS OF THE L. S. DARKEN  
RELATION (1948). THE PROBLEM CONCERNING THE CONCN. CHANGE OF THE  
DIFFUSION COEFFS. OF THE COMPONENTS IS EXAMD. EXPTL. AND THEORETICALLY.  
FACILITY: INST. MET. IM. BAIKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.391.14

B  
BOROVSKIY, V. P., VAS'KOVSKIY, I. I., NIZHEGOL'SKIY, B. A., PARTALA, O. N., Kiev  
Polytechnical Institute

"A Multiphase Amplitude-Modulated Very Low Frequency Voltage Oscillator"

Moscow, Pribery i Tekhnika Eksperimenta, No 2, Mar/Apr 70, pp 139-140

Abstract: The authors describe a multiphase generator of periodic signals of arbitrary form approximated by a step function. Provision is made for amplitude modulation of the output signal. A schematic diagram of the oscillator is given, as well as data on the nonlinearity of the modulation characteristics and the coefficient of nonlinear distortions for the case of a sinusoidal signal. The oscillator may be used for power supply to a three-phase synchronous motor as well as in other applications.

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1/2 - 007 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--INTENSIFICATION OF THE FINISHING OF A CUT STAPLE FIBER -U-

AUTHOR--(05)--KREMNEV, O.A., BOROVSKIY, V.R., SATANOVSKIY, A.L., KIGEL,  
T.B., BUGAYCHUK, N.F.  
COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (2), 53-5 (RUSS)

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--RAYON, TEXTILE

B

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1661

STEP NO--UR/0183/70/000/002/0053/0055

CIRC ACCESSION NO--AP0125283

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125283

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COM. CONTINUOUS WASHING OF RAYON STAPLE WITH 0.1% NaOH SOLN. AT 78DEGREES REQUIRES 135 SEC TO REDUCE ITS S CONTENT BELOW 0.075PERCENT. THE INSERTION OF ROLLERS, WHICH COMPRESS THE STAPLE PERIODICALLY DURING ITS PASSAGE THROUGH THE BATH, AND TEMP. INCREASE TO 95DEGREES REDUCED THIS TIME TO 20-5 SEC. THE WASHING TIME WAS ALSO REDUCED TO 15-20 SEC WHEN VIBRATIONS OF 200 CYCLES-MIN AND 50 MM AMPLITUDE WERE APPLIED TO THE WASH SOLN. HELD AT 80DEGREES. BOTH OF THESE METHODS INCREASED PRODUCTIVITY. THE VIBRATIONS GAVE SOFTER, EASIER TO DRY FIBERS. FACILITY: INST. TEKHN. TEPL0FIZ., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 615.332 (Rifampicinum).015.44, 576.851.252+576.851.42

BOBROVSKIY, M., DZERZHANOVSKAYA, D., YAKUBICH, P., and BOROVSKIY, YE., Chair of Microbiology, University Medical School, Bialystok, Poland

"Rifampicin Activity Against Clinical Strains of Staphylococci and Gram-Negative Bacilli"

Moscow, Antibiotiki, No 12, 1971, pp 1072-1077

Abstract: Study of 282 bacterial strains isolated from pus, sputum, urine, and feces showed that all 120 Staphylococcus aureus strains were highly sensitive to rifampicin in concentrations ranging from 0.005 to 0.05  $\mu$ g/ml. Among the gram-negative bacteria, E. coli and Proteus were the most sensitive to the antibiotic. Salmonella and Shigella were somewhat less sensitive, while Klebsiella and Ps. aeruginosa proved to be resistant. The minimum inhibitory concentration of rifampicin varied with the amount of bacteria tested and the pH of the medium. Resistant variants growing in the presence of high concentrations of the antibiotic appeared at the rate of 1 per  $10^7$  cells. The sensitivity of many of the gram-negative strains was intensified by increasing the acidity of the medium. It is suggested that the therapy of urological infections can be made more effective by acidifying the patient's urine.

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1/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CONCERNING THE METHOD OF CONSTRUCTING DIAGRAMS OF STATE BY MEANS OF  
LOCAL X RAY SPECTRUM ANALYSIS -U-

AUTHOR--(03)-BOROVSKIY, YU.B., MARCHKOVA, I.D., UGASTE, YU.E.

COUNTRY OF INFO--USSR

SOURCE--MLSCO, TEKRETICHESKIYE I EKSPERIMENTAL'NYE METODY ISSLEDOVANIYA  
REFERENCE--REF. ZH. METALLURGIYA, NR 3, 1970, ABSTR. NR 31260RETICAL AND  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TERNARY ALLOY, X RAY SPECTROSCOPY, ALLOY PHASE DIAGRAM,  
CONSTITUTION DIAGRAM, METAL DIFFUSION, BINARY ALLOY, X RAY SPECTRUM,  
HIGH PURITY METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0966

STEP NO--UR/0000/69/000/003/0166/0172

CIRC ACCESSION NO--AR0122985

UNCLASSIFIED



2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AR0122985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIFIC NATURE OF THE CONSTRUCTION OF DIAGRAMS OF STATE OF BINARY AND TERNARY METAL SYSTEMS BY THE METHOD OF DIFFUSION LAYERS, WITH THE USE OF LOCAL X RAY SPECTRUM ANALYSIS, IS CONSIDERED. ON THE BASIS OF AN ANALYSIS OF THE LITERATURE DATA, AS WELL AS OF THEIR OWN RESEARCH, THE AUTHORS SHOW THAT DIAGRAMS OF STATE FOR BINARY METAL SYSTEMS CAN, IN PRINCIPLE, BE COMPLETELY CONSTRUCTED BY THE DIFFUSION LAYER METHOD IF DIFFUSION ZONES OF SUFFICIENT WIDTH ARE CULTIVATED NOT ONLY BETWEEN PURE METALS, BUT ALSO BETWEEN SINGLE PHASE ALLOYS. IT IS ALSO SHOWN THAT IN ORDER TO INCREASE THE PRECISION OF THE CONCENTRATION BOUNDARIES OF PHASE EXISTENCE, IT IS USEFUL TO STUDY TWO PHASE EQUILIBRIUM ALLOYS BY THE METHOD OF LOCAL X RAY SPECTRAL ANALYSIS. ATTENTION IS DRAWN TO THE NECESSITY FOR STUDYING THE CONCENTRATION DEPENDENCE OF THE COEFFICIENT OF MUTUAL DIFFUSION, SINCE THE KINETICS OF THE GROWTH OF THE DIFFUSION LAYERS ARE, OTHERS CONDITIONS BEING EQUAL, DETERMINED BY THE VALUE OF THE COEFFICIENT OF MUTUAL DIFFUSION. CONSIDERATION IS GIVEN TO THE PRINCIPLES AND PROSPECTS OF USING THE METHOD OF DIFFUSION LAYERS FOR CONSTRUCTING DIAGRAMS OF STATE OF TERNARY METAL SYSTEMS.

UNCLASSIFIED

USSR

UDC: 539.121.72

VOROB'YEV, A. A., AREF'YEV, K. P., BOROV'YEV, S. A., FILEV, A. Ya., Tomsk Polytechnical Institute imeni S. M. Kirov

"Capture of Positrons by F-Centers in Tempered Crystals"

Tomsk, Izvestiya VUZov: Fizika, No 2(129), 1973, pp 141-143

Abstract: Curves of angular correlation of gamma quanta were measured in KCl and NaCl single crystals to determine the influence which tempering of colored crystals has on the process of annihilation of positrons. Angular resolution was approximately 1 mrad with a measurement accuracy of at least 3%. Crystals measuring 20 x 30 x 1 mm were tempered by cooling from 700°C on a massive copper sheet in air. The results of the experiment confirm the possibility of positron capture by color centers induced in crystals by various methods. The method of positron annihilation is apparently an indicator of color centers which are localized on dislocations and other structural defects.

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1/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--PLASTICS OF THE GALL BLADDER BY AN ISOLATED ILEUM SEGMENT -U-

AUTHOR--BOROVYY, YE.M.

B

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 3, PP  
37-40

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, SYNDROME, CLINICAL MEDICINE,  
GALLBLADDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/0941

STEP NO--UR/0481/70/000/003/0037/0040

CIRC ACCESSION NO--AP0126600

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0126600

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER REMOVAL OF A GALL BLADDER CONSIDERABLE CHANGES TAKE PLACE IN THE EXTRA HEPATIC BILE DUCTS WHICH TAKE UPON THEMSELVES THE FUNCTION OF THE GALL BLADDER. THE BILE OFTEN DILATES, THE TONE OF ITS WALL INCREASES WITHOUT ORGANIC CHANGES IN THE DISTAL SEGMENT OF THE DUCT. AS SUGGESTED BY G. G. KARAVANOV WE EXPERIMENTED ON 4 DOGS WITH PLASTIC OF GALL BLADDER BY AN ISOLATED ILEUM SEGMENT. AFTER STUDY OF EXPERIMENTAL DATA WE OPERATED 3 PATIENTS WITH POSTCHOLECYSTECTOMIC SYNDROME WITH ABSENCE OF ORGANIC CHANGES IN THE DISTAL SEGMENT OF THE BILE DUCT AND WITH ITS CONSIDERABLE DILATATION. IMMEDIATE RESULTS WERE SATISFACTORY. FURTHER STUDIES ARE BEING CARRIED OUT. FACILITY: KHIRURGICHESKOYE OTDELENIYE RAGENSKOY OBLASTNOY BOL'NITSY.

UNCLASSIFIED

USSR

UDC 629.12:532

LYAKEOVITSKIY, A. G., BOROZNA, D. I., STEPANYUK, Ye. I.

"Investigation of the Hydromechanical Properties of Double-Hull Low-Draft Ship With Supercritical Velocity"

V sb. Materialy 25 Nauch.-tekhn. konferentsii. Leningr. in-t vodn. transp. 1971. T. 2 (Materials of the 25th Scientific and Technical Conference. Leningrad Institute of Water Transportation, 1971. Vol 2), Leningrad, 1971, pp 61-65 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10B408)

Translation: Two models of a water-displacing catamaran differing with respect to the stern contours were tested in an experimental tank to evaluate the maneuverability of a ship on a limited depth, the resistance of the water to motion, and the possibility of attaining supercritical velocities. It is shown that with practically identical resistance to motion, the model having a bent transom is able to pass through a channel 0.35 meter shallower (as adjusted to full-scale) than the other model. As a result of the study, a theoretical blueprint is developed for a double-hull low-draft ship which will be navigable in water 1.3-1.4 m deep at the critical velocity, and ~1 m deep at supercritical velocity. G. A. Alchudzhan.

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1/2 039 UNCLASSIFIED PROCESSING DATE--02-01-70  
TITLE--CREEP OF LINEAR UNORIENTED POLYMERS DURING ELONGATION, COMPRESSION,  
AND TORSION -U-  
AUTHOR--(04)-BORSENKO, V.N., PESCHANSKAYA, N.N., SINANI, A.B., STEPANOV,  
V.A.  
COUNTRY OF INFO--USSR **B**  
SOURCE--MEKH. POLIM. 1970, 6(1) 24-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS  
TOPIC TAGS--LINEAR POLYMER, ELONGATION, CREEP, POLYMETHYLMETHACRYLATE,  
POLYSTYRENE RESIN, POLYETHYLENE, LOW TEMPERATURE EFFECT, COMPRESSIVE  
STRESS, TORSION STRESS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/0327 STEP NO--UR/0374/70/006/001/0024/0028  
CIRC ACCESSION NO--AP0111521  
UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111521

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELONGATION CREEP RATES OF POLY(METHACRYLATE) BETWEEN MINUS 50DEGREES AND PLUS 70DEGREES ARE ONLY APPROX. TWICE AS LARGE AS THE COMPRESSION AND TORSIONAL CREEP RATES; BELOW MINUS 100DEGREES THE ELONGATION CREEP RATES GREATLY EXCEED THE COMPRESSION AND TORSIONAL CREEP RATES. SIMILAR SITUATIONS EXIST FOR POLYSTYRENE AND POLYETHYLENE, BUT THE 3 CREEP CURVES NEARLY COINCIDE IN THE 60-70DEGREES RANGE FOR POLYSTYRENE AND BELOW MINUS 140DEGREES FOR POLYETHYLENE.

UNCLASSIFIED-

1/2\* 039 UNCLASSIFIED PROCESSING DATE--02/01/70  
TITLE--CREEP OF LINEAR UNORIENTED POLYMERS DURING ELONGATION, COMPRESSION,  
AND TORSION -U-  
AUTHOR--(04)--BORSENKO, V.N., PESCHANSKAYA, N.N., SINANI, A.B., STEPANOV,  
V.A.  
COUNTRY OF INFO--USSR *B*  
SOURCE--MEKH. POLIM. 1970, 6(1) 24-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS  
TOPIC TAGS--LINEAR POLYMER, ELONGATION, CREEP, POLYMETHYLMETHACRYLATE,  
POLYSTYRENE RESIN, POLYETHYLENE, LOW TEMPERATURE EFFECT, COMPRESSIVE  
STRESS, TORSION STRESS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/0327 STEP NO--UR/0374/70/006/001/0074/0028  
CIRC ACCESSION NO--AP0111521  
UNCLASSIFIED



2/2 039

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111521

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELONGATION CREEP RATES OF POLY(METHACRYLATE) BETWEEN MINUS 50DEGREES AND PLUS 70DEGREES ARE ONLY APPROX. TWICE AS LARGE AS THE COMPRESSION AND TORSIONAL CREEP RATES; BELOW MINUS 100DEGREES THE ELONGATION CREEP RATES GREATLY EXCEED THE COMPRESSION AND TORSIONAL CREEP RATES. SIMILAR SITUATIONS EXIST FOR POLYSTYRENE AND POLYETHYLENE, BUT THE 3 CREEP CURVES NEARLY COINCIDE IN THE 60-70DEGREES RANGE FOR POLYSTYRENE AND BELOW MINUS 140DEGREES FOR POLYETHYLENE.

UNCLASSIFIED

Acc. Nr:

APC038023

B

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 1, pp 26-30

SELF-FOCUSSING OF THE RADIATION FROM A RUBY LASER  
IN A CdS CRYSTAL AND ITS EFFECT ON TWO-PHOTON  
PHOTOCONDUCTIVITY

A. A. Borshch, M. S. Brodin

The properties of photoconductivity of a CdS crystal during two-photon excitation by light from a ruby laser are investigated. At certain excitation powers and additional photocurrent spike is observed superimposed on the background photocurrent pulse; it is ascribed to the thermal effect of the current in the crystal. On the other hand the creation of a high concentration of free carriers and their localization in a narrow current channel is ascribed to self-focussing of the laser radiation in CdS which produces the carriers.

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REEL/FRAME  
19731064

21

043

USSR

UDC: 620.172-251.2

BORODIN, N. A. and ~~BORECHNEV, N. I.~~, Moscow Aviation Technological Institute

"The Influence of Test-Procedure Error on Scattering of the Characteristics of Long-Term Strength and Creep"

Moscow, Zavodskaya Laboratoriya, No 10, 1971, pp 1235-1237

Abstract: The article evaluates that scattering of results of prolonged static tests which is caused by errors of the investigation procedure. On the basis of the data of tests within the framework of the State Standards presently in force for the creep and long-term strength of alloy Al4-1 for three stress levels at each of three temperatures, an evaluation is made of the part played by the dispersion of characteristics, introduced by test-procedure errors, depending upon the stress level and the temperature. 1 figure. 1 table. 3 references.

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USSR

UDC 620.172.251.2

BORODIN, N. A., BORSHCHEV, N. I.

"Regularities of Scattering of Creep Characteristics"

Moscow, Zavodskaya Laboratoriya, Vol 37, No. 8, 1971, p 955-958.

Abstract: The form of the distribution function for the stable creep rate is determined and the change in characteristics of scattering of the minimum creep rate is studied. It is demonstrated that the following distributions are normal: the distribution of the logarithm of the stable creep rate in the 0.01-0.99 probability range, the distribution of the rate considering lower and upper limiting values in the entire range of probabilities. The dispersion of minimum creep rate decreases with decreasing stress and increasing durability. Scattering also decreases with decreasing base creep rate value and increasing temperature.

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USSR

BORSIICHEV, V. B.

"Grammars Fixed Using Graphs"

Probl. Strukt. Lingvistiki 1971 [Problems of Structural Linguistics 1971 -- Collection of Works], Moscow, Nauka Press, 1972, pp 68-85  
(Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V897 by M. Levitina).

Translation: The right graphs  $\gamma$  are studied, i.e., connected graphs satisfying the conditions: 1) in  $\gamma$  there is only one input and one output point, 2) at least one throughpath travels through each point of graph  $\gamma$ . If right graph  $\gamma$  and mapping  $\phi$  of the subset of its points ( $E$ ) are fixed in alphabet  $\mathcal{U}$ ,  $G_{sg} = (\gamma, \phi)$  refers to the simple graph grammar. Language  $L$ , fixed by grammar  $G_{sg}$  is the set of base words consisting of throughpaths in graph  $\gamma$ . It is proven that the class of languages generated by simple graph grammars corresponds to the class of regular languages. A simple graph grammar is called canonical if the graph  $\gamma$  consists of a finite set of chains, which can intersect only their origins (a chain is a sequence  $\mu = l_0, l_1, \dots, l_n$ , where  $l_0$  is an elementary throughpath,  $l_i$  ( $1 \leq i \leq n$ ) are elementary contours in  $\gamma$ , and the initial point of each contour

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USSR

BORSHCHIEV, V. B., Probl. Strukturn. Lingvistiki 1971, Moscow, Nauka Press, 1972, pp 68-85.

$l_k$  ( $1 \leq k \leq n$ ) belongs to contour  $l_{k-1}$ , but does not coincide with its initial peak and does not belong to any other contour of the chain). The equivalence of the class of simple graph grammars and canonical graph grammars is proven.

Suppose that alphabet  $\mathcal{B}(\mathcal{B} \cap \mathcal{U} = \emptyset)$  is fixed, which we will call the alphabet of names. Let us study the finite set  $Q$  of simple graph grammars in alphabet  $\mathcal{Q} = \mathcal{B} \cup \mathcal{U}$  ( $Q = G_{sg}^1, \dots, G_{sg}^n$ ). Suppose coincidence  $\psi$  (not necessarily unambiguous) is also fixed between set  $Q$  and alphabet  $\mathcal{U}$  such that each name corresponds to at least one grammar of  $Q$  and each grammar to at least one name. The name graph grammar  $G_{ng}$  refers to the system of objects  $\langle \mathcal{U}, \mathcal{B}, P_0, Q, \psi \rangle$ , i.e., the set of right graphs, each of which corresponds to one or more names -- symbols from  $\mathcal{B}$ . Each natural peak  $\alpha_k^j$  of each graph corresponds to a letter  $c_k^j \in \mathcal{L}$ , i.e., a letter from  $\mathcal{U}$  or a letter from  $\mathcal{B}$ . Point  $\alpha_k^j$  refers to a letter or name respectively. A certain name  $P_0$  is called the initial name. Grammar  $G_{ng}$  fixes the language as

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USSR

BORSHCHEV, V. B., Probl. Strukt. Lingvistiki 1971, Moscow, Nauka Press, 1972, pp 68-85.

follows. Word  $l_2$  follows directly from  $l_1$  in  $G_{ng}$  if  $l_1 = AP_j C$ ,  $l_2 = A\delta_{jk} C$ , where  $A, C$  are words in alphabet  $\mathcal{U} \cup \mathcal{B}$ ,  $P_j \in \mathcal{P}$  and  $\delta_{jk}$  is a word in language  $\mathcal{B}_{sg}^j$ , fixed by a certain grammar  $G_{sg}^j = \{\gamma_j, \phi_j\}$ , which is compared (coincidence  $\psi$ ) with name  $P_j$ . Word  $l_n$  can be concluded from word  $l_1$  if there is a train of words:  $p = l_1, \dots, l_n$  ( $n \geq 1$ ), where  $l_{i+1}$  follows directly from  $l_i$  ( $1 \leq i \leq n$ ). Language  $L$  is the set of words in alphabet  $\mathcal{U}$ , concluded from  $P_0$ . It is proven that the class of name graph languages coincides with the class of contextless languages.

A certain generalization of name graph grammars is then studied -- complex graph grammars. In these, the points on graphs can be composed not only of letters from  $\mathcal{U}$  or names from  $\mathcal{B}$ , but also tables or variables. A table is a non-empty subset of alphabet  $\mathcal{U} \cup \mathcal{B}$ , a variable is a letter in a certain alphabet  $X$ , which makes up a certain table  $T_k$ . The value of variable  $x_k$  may be any symbol from  $T_k$ . It is proven that this generalization does not go beyond the class of contextless languages.

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USSR

BORSICHEV, V. B., Probl. Strukturn. Lingvistiki 1971, Moscow, Nauka Press, 1972, pp 68-85.

A method of syntactical analysis is described for languages fixed by graph grammars. A universal disposition is constructed, which for any word  $l$  in alphabet  $\mathcal{U}$  and any name grammar  $G_{ng}$  fixing language  $L$  determines whether  $l$  belongs to  $L$  and if so constructs all grammatical structures of word  $l$ .

4/4

- 89 -



USSR

UDC 539.292

SALLI, I. V., DOLINSKAYA, V. Z., BORSHCHEVSKAYA, D. G., and SAVICH, A. I.,  
Dnepropetrovsk Division of the Institute of Mechanics, Academy of Sciences  
Ukr SSR

"Disturbances of Regular Growth in Lamellar Eutectics"

Kiev, Metallofizika, No 39, 1972, pp 106-111

Abstract: The directed crystallization of Pb-Sn, Cd-Pb, Cd-Zn, Zn-Sn, and Cd-Sn alloys of eutectic composition was investigated with the crystallization accomplished by the method of zone melting using a unit with a moving annular crucible. Directed crystallization of the investigated alloys leads to the formation of lamellar colonies oriented in the direction of heat escape. Disturbances were observed in the regular lamellar growth of eutectic phases in the form of repeated transverse bands. 5 figures, 1 table, 13 bibliographic references.

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BORSHCHEVSKAYA, D. G.

UDC 532.78

INVESTIGATION OF DIRECTED CRYSTALLIZATION OF EUTECTIC ALLOYS

[Article by D. I. Fenichev, D. G. Borshchevskaya, L. M. Malchenko, Dnepropetrovsk State University, Department of Experimental Physics; Ordzhonikidze, Izvestiya VUZ: Tsvetnaya Metallurgiya, Russian, No 6, 1971, signed to press 8 February 1971, pp 130-132.]

Many investigators are concerned with studying the rules governing the formation of regular structures during directed crystallization of eutectic alloys [1-6]. This is because materials with an ordered filamentary (lamellar) structure possess anisotropic structure-sensitive properties and are finding wide-spread usage in various branches of contemporary technology. We know the following to be the basic conditions which permit obtaining a stable directed structure [1, 3, 5]: high purity of the original components, high temperature gradient in the liquid at the interface of the liquid and solid phases and a low crystallization rate. Nevertheless there are alloys which can not be directionally crystallized even with strict satisfaction of the above conditions [7-9]. Apparently there are factors that are as yet unknown which determine the formation of directed structures.

If we pay attention to the crystallographic orientation of the eutectic phases [2], we can then state that their conjunction is near the densest packing, which must give minimal fractures at the boundary of the contact and minimal increase in the total free energy of the two-phase aggregate. Consequently we can predict the possible crystallographic planes of conjunction and their number for each phase. Then to obtain a directed structure it is necessary that the number of possible planes of conjunction be minimal. In such case, after nucleation of the eutectic column, the growth will take place only in one direction since the others are energetically unjustified.

Similar conjunctions obviously are possible in systems which are formed either by strongly different crystallographic phases or by highly symmetrical phases or by phases with a hexagonal structure.

In the present paper we investigated the possibility of obtaining a directed eutectic structure in the systems Pb-Sn, Bi-Zn, Cd-Zn, and Bi-Sn. The directional hardening of alloys was done by the methods of

JAS 55812  
4 May 72

# BORSHCHEVSKAYA, D. G.

## INVESTIGATION OF DIRECTED CRYSTALLIZATION OF EUTECTIC ALLOYS

UDC 532.78

[Article by O.I. Fomichov, D.G. Borshchevskaya, T.M. Mal'chenko, Dnepropetrovsk State University, Department of Experimental Physical Physics, Lvovskaya Vuz. Ispytaniya Neftekhimika, Russian, No 6, 1971, signed to press 8 February 1971, pp 130-132]

Many investigators are concerned with studying the rules governing the formation of regular structures during directed crystallization of eutectic alloys [1-6]. This is because materials with an ordered lamellar (laminar) structure possess anisotropic structure-sensitive properties and are finding wide-spread usage in various branches of contemporary technology. We know the following to be the basic conditions of contemporary technology: a stable directed structure [2, 3, 5]; high purity of the original components, high temperature gradient in the liquid at the interface of the liquid and solid phases and a low crystallization rate. Nevertheless there are alloys which can not be directionally crystallized even with strict satisfaction of the above conditions [7-9]. Apparently there are factors that are as yet unknown which determine the formation of directed structures.

If we pay attention to the crystallographic orientation of the eutectic phases [2], we can then state that their conjunction is near the densest packing, which must give minimal fractures at the boundary of the contact and minimal increase in the total free energy of the two-phase aggregate. Consequently we can predict the possible crystallographic planes of conjunction and their number for both phases. Then to obtain a directed structure it is necessary that the number of possible planes of conjunction be minimal. In such case after nucleation of the eutectic column, the growth will take place only in one direction since the others are energetically unjustified.

Similar conjunctions obviously are possible in systems which are formed either by strongly differing crystallographic phases or by highly symmetrical phases or by phases with a hexagonal structure.

In the present paper we investigated the possibility of obtaining a directed eutectic structure in the systems Pb-Sn, Bi-Cd, Cd-Zn, and Bi-Sn. The directional hardening of alloys was done by the methods of

B Biochemistry

USSR

UDC 547.962

VLADIMIROV, YU. A., DOBRETsov, G. YE., and BORSECHNEVSKAYA, T. A.,  
Chair of Biophysics, Second State Medical Institute imeni N. I. Pir-  
ogov

"Luminescence of Histones in Aqueous Solutions"

Moscow, Molekulyarnaya Biologiya, No 1, 1970, pp 9-15

Abstract: The absorption spectra (250-320 nm) and luminescence (290-370 nm) of four histone fractions from calf thymus was studied in aqueous solutions at pH- 2-12 and sodium chloride concentrations of 0-1.5 M. The absorption spectra corresponded to the total absorption of phenylalanine and tyrosine residues; the luminescence spectra were caused by the phenol groups of the histones. The tryptophan-containing nonhistone admixtures made some contribution to the absorption and luminescence of the F1 histone. The quantum yield of luminescence of the phenol groups peaked in 0.8 M NaCl solutions at pH 2 and at 0.13M for the F1, F2a, and F3 fractions and 0.09M for the F2b fraction. At alkaline pH, quenching of the luminescence of the F1 histone took place at the same pH values as ionization of 1/2

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VLADIMIROV, YU. A., et al., Moscow, Molekulyarnaya Biologiya, No 1, 1970, pp 9-15

the phenol groups, but at lower pH values in the case of the other histones. This difference may have been due to the interaction of the tyrosine residues in the molecules of the F2a, F2b, and F3 histones with the proton acceptors and/or to quenching resulting from the migration of energy between the phenol groups.

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- 13 -

Acc. Nr: **AP0044688**

Ref. Code: **UX 0463**

PRIMARY SOURCE: **Molekulyarnaya Biologiya**, 1970, Vol 4, Nr 1,  
pp 9-16

**LUMINESCENCE OF HISTONES IN WATER SOLUTIONS**  
**Vladimirov, Yu. A.; Dobretsov, G. Ye.; Borshchevskaya, T. A.**

*Second State Moscow High School of Medicine, USSR, Moscow*

The absorption spectra (250—320  $m\mu$ ) and the luminescence spectra (290—370  $m\mu$ ) of four histone fractions from calf thymus have been studied in water solutions at pH 2—12 and at the concentration of sodium chloride 0—1.5 M. The absorption spectra corresponded to the sum of the absorptions of phenylalanine and tyrosine residues; the luminescence was connected with phenol groups of histones. Some traces of tryptophan-containing non-histone protein did contribute in the luminescence and absorption of histone F1. The quantum yield of the luminescence of phenol groups had the maximum value in

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**19771419**

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0.8 M NaCl solution at pH 2 (0.13 for F1, F2a, F3 and 0.09 for F2b). At alkaline pH the quenching of luminescence of histone F1 and the phenol groups ionization took place at the sample pH values, while for the other fractions the pH values of the maximum quenching of the luminescence were lower than those of ionization. It is possible that this difference is due to interaction of tyrosine residues and proton acceptors in the histone F2a, F2b, F3 molecules and (or) to the quenching caused by energy migration in phenol groups.

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19771420

hc

1/2 035 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--BOLT AMPERE CHARACTERISTICS OF AMORPHOUS LAYERS BASED ON A PRIMEII  
B PIMEIV-C PRIMEV TERNARY SYSTEMS -U-  
AUTHOR-(05)-BARYSHEV, V.G., BOLTIYETS, N.A., BORSCHEVSKIY, A.S.,  
GORYUNOVA, N.A., ORESHKIN, P.T.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 372-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--AMORPHOUS SEMICONDUCTOR, VOLT AMPERE CHARACTERISTIC, THIN FILM  
SEMICONDUCTOR, ARSENIDE, GERMANIUM COMPOUND, CADMIUM COMPOUND,  
PHOSPHIDE, PULSE SIGNAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/0088 STEP NO--UR/0449/70/004/002/0372/0375  
CIRC ACCESSION NO--AP0105174  
UNCLASSIFIED



2/2 035

CIRC ACCESSION NO--AP0105174

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMORPHOUS LAYERS (2-6 MU THICK) WERE PREPD. BY VACUUM SPUTTERING OF CDGEAS SUB2, ZNDIAS SUB2, AND CDGEP SUB2 ON GALSS SUBSTRATES AND WERE PROVIDED WITH EVAPD. METAL ELECTRODES (SN, PB). THE FILM COMPNS. DID NOT CORRESPOND TO THOSE OF THE INITIAL SUBSTANCES; THE CONTENT OF THE LEAST VOLATILE COMPONENT (GE) WAS DECREASED. ON THE DYNAMIC CURRENT VOLTAGE CHARACTERISTICS OF THE FILMS, SWITCHING FROM THE CUTOFF TO THE OPEN STATE WITH MEMORY WAS FOUND. THE CHARACTERISTICS WERE NOT AFFECTED BY CHANGES IN FREQUENCY OF 3 ORDERS OF MAGNITUDE. THE THRESHOLD OF NEG. RESISTANCE IN THE FILMS STUDIED WAS SIMILAR TO 2 TIMES 10 PRIME4 V-CM. THE CURRENT VOLTAGE CHARACTERISTICS STUDIED WITH RECTANGULAR PULSES SHOWED THAT THE MEMORY IS PRESENT FOR PULSE DURATION GREATER THAN 4 TIMES 10 PRIME NEGATIVE6 SEC AND THAT THE BREAKDOWN VOLTAGE INCREASES WITH DECREASING PULSE DURATION. THE SWITCHING FROM THE CUTOFF TO THE OPEN STATE IS DETD. BY AN ACCUMULATED CHARGE; I.E., IT DEPENDS ON BREAKDOWN VOLTAGE AS WELL AS ON BREAKDOWN CURRENT. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

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2

Experiments with the aid of the "many" instrument showed a sufficiently high correlation of the "many" instrument of record production work of aviation controllers and with the findings of the method of deviation control and with the progress of the method of the ability of "production" intervention with the aid of a measured material prove the appropriateness of using the method of psychophysiological selection of specimens or using the method, in combination with others, can be helpful for tactical actions in determining people who according to their psychological nature or as a result of obtaining functional disturbances in the nervous system cannot serve aviation equipment with sufficient reliability.

BORSHCHENSKY, I.A.

APPROVED FOR RELEASE: 09/01/2001

**CIA-RDP86-00513R002200430003-7"**

1.  $2.5 \times 10^3$

[illegible]

00-177-269

11

$$C_{\text{eff}} = C_0 + \frac{\gamma}{\omega} \left( \frac{dC}{dt} \right) + \frac{\gamma^2}{2\omega^2} \left( \frac{d^2C}{dt^2} \right) + \dots$$

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A  
A  
A

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7

The study of the forms of the physical body of a child is a very important part of the study of the child. It is a study of the child's physical development, and it is a study of the child's physical health. The study of the forms of the physical body of a child is a study of the child's physical development, and it is a study of the child's physical health.

[illegible][illegible][illegible]

**APPROXIMATELY** 100,000 women are in London at 30,000 per cent. In recent years, wounds of even greater frequency when they are conducted through criminal hands. In this connection greatly interesting is

AM0040757- Borshchevskiy, I. KUR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 170

240724 OXYGEN ROOF LANCE (1) moved by the slide (3) fitted with a fork (4) to clamp the lance in place with keys (5). The carriage (7) rides the guide (10) off the drive (11,12). Depending on the structural aspects of the particular furnace, the roof has a transverse opening 30-50 mm larger than that of the tuyere (lance). The opening is blown right the way along to prevent smoke issue. The moving reaction zone draws in all new portions of metal which have lower temperature and are more identical with the basic mass in terms of chemical composition. It also reduces iron evaporation, or its oxides and so cuts down on dust formation.

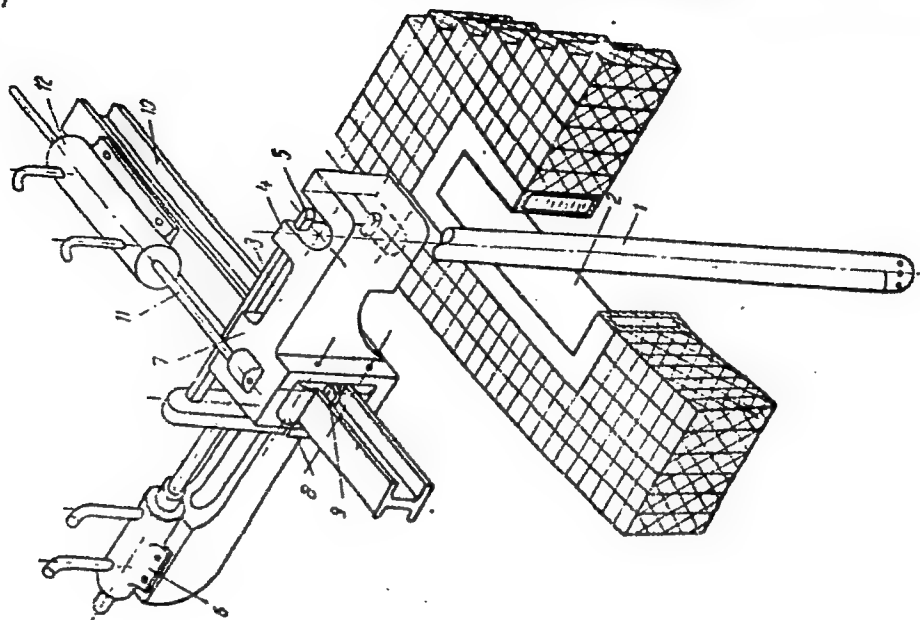
19.4.65 as 1003162/22-2. BORSHCHEVSKIY, I. K. et al.  
I. P. BARDIN FERROUS METALLURGY INST. (14.8.69.)  
Bul 13/1.4.69. Class 18b. Int. Cl. C 21c.

1/3

18

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AA0040757



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19750443

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AA0040757

AUTHORS: Borshchevskiy, I. K.; Zhelnov, B. S.; Trubetskov, K. M.;  
Tarasov, V. M.; and Chermenskiy, D. P.

Tsentral'nyy Nauchno - Issledovatel'skiy Institut  
Chernoy Metallurgii imeni I. P. Bardina

3/3  
**19750444**

MEDICINE  
Aerospace Medicine

USSR

UDC 613.693:616.28-072.1

BORSHCHEVSKIY, I. YA., Candidate of Medical Sciences

"Some Problems of Physiological Acoustics in Aviation Medicine"

Moscow, Voenno-Meditsinskiy Zhurnal, No 4, 1970, pp 78-80

Abstract: Pathophysiological disturbances in the organism caused by aviation noises were studied. Bone conduction of any kind of vibration affects perception centers of the brain. Modern electroacoustical and electronic apparatus permits us to learn the physiological characteristics and mechanisms of functional disruption of the hearing apparatus from the peripheral receptors to the cortical interpreters. But in order to solve the serious problems of aviation acoustics, we must also employ physiologists, psychologists, neuropathologists, therapists, and other specialists. One pilot suffers impairment of acoustic perception after a comparatively short period of flying with intense noises; another pilot suffers gradual impairment of acoustic perception after small exposures to slight noises, with a cumulative effect. Both must be studied. We must study the effect of sudden changes in barometric pressure. A sudden drop in pressure produces a strong afferent stimulus on the baroreceptor apparatus of the middle ear, the accessory nasal sinuses, the interoceptors of the abdominal cavity, and the entire gastro-intestinal tract. Oxygen deprivation at higher altitudes affects the speech,

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USSR

VINOGRADOV, B. V., Rastitelnyye Resursy, Vol 6, No 2, 1970, pp 157-165

cover decreases the reflecting power. The correlation between the reflecting power of plants and their productivity is so strong that an equation including the brightness of soil, plants and the amount of the vegetative mass has been established. The species composition of the plant associations, their phenological state and the spectral characteristics of the receptors have some influence on the formula. These methods could be used to get information from satellites and orbital laboratories.

1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CERTAIN PROBLEMS OF PHYSIOLOGICAL ACOUSTICS IN AVIATION MEDICINE  
-U-  
AUTHOR--BORSHCHEVSKIY, I.YA. *B*  
COUNTRY OF INFO--USSR  
SOURCE--VOENNO-MEDITS INSKII ZHURNAL, APR. 1970, P. 78-80  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ACOUSTICS, AUDITORY SYSTEM, AIRCRAFT NOISE, MEDICINE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3009/0155 STEP NO--UR/0177/70/000/000/0078/0080  
CIRC ACCESSION NO--AP0139020  
UNCLASSIFIED



2/2 032

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0139020

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GENERAL DISCUSSION OF THE ETIOPATHOGENESIS OF THE AUDITORY DISORDERS OBSERVED IN FLYING PERSONNEL AND AIRCRAFT ENGINEERS AS A RESULT OF SYSTEMATIC EXPOSURE TO ACOUSTIC STRESSES. THE DIFFICULTIES ENCOUNTERED IN ATTEMPTS TO DEVELOP EFFECTIVE PROPHYLACTIC MEASURES TO PREVENT OR REDUCE THESE DISORDERS IN THE AUDITORY ANALYSOR ARE INDICATED. THE SCARCITY OF STUDIES IN THIS FIELD IS NOTED. THE IMMEDIATE TASKS OF AVIATION MEDICINE ARE SEEN IN MORE INTENSIVE STUDIES OF ADVANCED AIRCRAFT ACOUSTIC CHARACTERISTICS AND HARMFUL EFFECTS OF THE ASSOCIATED ACOUSTIC STIMULI ON HEARING, AND IN DEVELOPING ADEQUATE PROTECTION OF THE AUDITORY ANALYSOR FROM AIRCRAFT NOISE.

UNCLASSIFIED

USSR

UDC: 629.78.017.2

BORSHCHEVSKIY, M. Z., ZORINA, E. S., IOSLOVICH, I. V.

"Optimum Deceleration of the Rotation of an Asymmetric Satellite About its Center of Mass"

Moscow, Upr. dvizhushchimisya ob'yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth All-Union Conference on Automatic Control Tbilisi, 1968--collection of papers), 1972, pp 293-294 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract No 10.41.69)

Translation: The paper deals with the variational problem of optimum braking of the rotation of a satellite about its center of gravity, i. e. the problem of optimum prestabilization. The controlling action is provided by two pairs of rocket engines rigidly fixed in the body of the satellite so that in the coordinate system associated with the principal moments of inertia of the satellite the moment of the controlling action is directed along a fixed straight line. This straight line does not coincide with any single principal axis of the ellipsoid of inertia. The optimality criterion is taken as the expenditures of reaction mass for an undetermined braking time. Résumé.

1/1

Petroleum Processing Technology

USSR

UDC 669.583.4.01.01:62-50

RAVIKOVICH, A. I., ~~YANIKOVSKIY, G. B.~~, PASYAKINA, YE. I., and ~~YANIKOVSKIY, G. I.~~,  
All Union Scientific Research Institute of Petroleum Industry

"Antiwear Additives for Lubricating Oils Containing Zinc, Manganese, and  
Phosphorus"

Moscow, Khimiya i Tekhnologiya Topliv i Masel, No 2, 1972, pp 47-50

Abstract: AFO -- a new antiwear oil additive containing zinc, manganese and phosphorus elements has been produced from the extract of residual oil of sulfurous petroleum, after preliminary purification with hexane. AFO has been shown to possess high antiwear and antioxidation properties, better than the commercial IFO. It is soluble in mineral oils of different viscosity, producing no sediment during storage at low temperature. The comparative tests carried out on models showed that the contact strength of gear teeth lubricated with TB-14.1 oil containing AFO is greater than the strength of the driving gear tested with TB-14.1 oil containing standard additives.

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BORSHCHEVSKIY, Yu. M.

ACCURACY OF EXPRESS DIAGNOSIS OF INFLUENZA BY  
THE FLUORESCENT ANTIBODY PROCEDURE. *N/-(medicine)*

[Article by L. Ye. Nefedova, G. A. Sakhakul, Yu. M. Borshchovskiy, F. A. Zelenin, N. A. Medvedeva, Yu. V. Yevlakhov, and D. B. Golovinskiy, All-Union Scientific Research Institute of Zoonoses, USSR Ministry of Health; Moscow, Voprosy Virologii, No. 6, 1971, submitted 30 November 1970, pp. 718-721]

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ISSN 0013-788X/75/0078-73\$576.8/073-4

14 February 1972

The first reported in 1956 the application of the fluorescent antibody method to diagnose influenza in humans [6]. Since then much attention has been given to the study of this question.

In the present paper an attempt is made to make clear the accuracy of the thermofluorescent method of diagnosis of influenza in comparison with the possibilities of serological diagnosis.

## Material and Methods

The methods of making preparations of fluorescent antibodies and the procedure of immunofluorescent analysis have already been described [1,2,4].

As was shown by Buck and Gatt [5], the accuracy of a diagnostic method is composed of its sensitivity  $S_1$  and its specificity  $S_2$ . Sensitivity is the probability of making a correct diagnosis in a patient, and specificity is the probability of rejection of disease in a healthy person or a patient with another disease.

A study of the accuracy of the serological method of influenza diagnosis has been made on a group of volunteers on an experimental clinic<sup>1</sup>. In that case only those inoculated volunteers who gave a distinct clinical reaction were taken into consideration [1].

The accuracy of the immunofluorescent method was evaluated in the diagnosis of diseases during an epidemic of influenza in parallel with the indicated serological methods. In that case the sensitivity  $S_1$  and specificity  $S_2$

USSR

UDC 532.529.5/.6

BORSHCHEVSKIY, YU. T., KOTEL'NIKOV, V. F., LEBEDEV, O. N.

"Study of the Effect of the Ratio of the Length of a Nozzle Channel to Its Diameter on the Fineness of Atomizing"

V sb. Sudovyye silovyye ustanovki i mekhanizmy Vyp. 46 (Marine Power Plants and Machinery. Vyp. 46 --Collection of Works), Novosibirsk, 1970, pp 59-66 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B520)

Translation: This article contains a brief survey of papers devoted to the study of the effect of the ratio of the length of the nozzle channel of a jet atomizer to its diameter on the drop dimensions of the atomized liquid. The procedure and results of experiments in which the fineness of atomizing was measured on varying the ratio of the nozzle length to its diameter  $l/d = 2.0-9.12$  are discussed. The drop dimensions were measured by catching them on a smoked plate and measuring the drop impressions under a microscope. Diesel fuel with a density from 0.828 to 0.857 g/cm<sup>3</sup> and a kinematic viscosity from 3.85 to 4.98 centistokes was used in the experiments. The experimental results are processed with the help of dimensionless variables. It is demonstrated that in the range of  $1/2$

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BORSHCHEVSKIY, YU. A, et al., Sudovyye silovyye ustanovki i mekhanizmy  
Vyp. 46, 1970, pp 59-66.

variation of the ratio  $Z/d = 4.4-9$  the magnitude of this ratio has little effect on the fineness of atomizing. With a decrease in the ratio  $Z/d < 4.5$  the middle diameter of the drop decreases. The bibliography has 14 entries.

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- 27 -

USSR

UDC 533.697

BORSHCHEVSKIY, Yu. T., KOLODIN, A. M., and SHNAYDER, V. E.

"Motion of a Circular Film Formed of Drops of Sprayed Liquid"

Tr. Novosib. in-ta inzh. vodn. transp. (Transactions of the Novosibirsk Institute of Water Transport Engineers), Vypusk (Issue) 44, 1970, pp 153-159 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B411, by Yu. F. Dityakin)

Translation: The motion of a liquid film formed on the walls of a circular vertical tube by drops of liquid falling on its surfaces from a sprayer is examined. It is assumed that a steady turbulent gas flow is passing through the tube, that the gravitational force acting on the gas is small, and that the flow in the tube is axisymmetric and one-dimensional. The mass balance equation for this flow is derived. A solution is obtained for the differential equation under the corresponding boundary value conditions. This solution consists of change in the flow of the drop masses due to turbulent diffusion and settling of the drops onto tube walls. Factors affecting drop saturation of the flow along the sides of the tube are determined; here momentum transport equations for two-phase flows are employed. The bulk concentration of liquid drops at the tube surface is shown to be  $1/2$

USSR

BORSHCHEVSKIY, Yu. T., et al., Tr. Novosib. in-ta inzh. vodn. transp.  
(Transactions of the Novosibirsk Institute of Water Transport Engineers),  
Vypusk (Issue) 44, 1970, pp 153-159 (from RZh-Mekhanika, No 12, Dec 70,  
Abstract No 12B411, by Yu. F. Dityakin)

determined by the field of gas velocities along the tube walls. Formulas  
are derived for calculating the velocity field for the case of small drops.

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- 30 -



USSR

UDC 621.375:621.396.679

B  
BORSHCHOV, P. P.

"Transistor Wide-Band Amplifier in the 0.5-50 Megahertz Frequency Range"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 3  
(Materials of the Scientific and Technical Conference. Leningrad Electrotechni-  
cal Communications Institute. Vyp. 3), Leningrad, 1970, pp 143-146 (from RZh-  
Radiotekhnika, No 8, Aug 70, Abstract No 8D 8)

Translation: This article contains an investigation of certain problems in planning and designing wide-band amplifiers constructed from powerful transistors. Attention is given to the problems of matching the input and output impedances.

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- 13 -

USSR

UDC: 53-1

BAYEV, S. V., BORSHCHOV, V. I.

"Experimental Study of Relaxation Autooscillations of a System with One Degree of Freedom"

Tr. Dnepropetr. In-ta Inzh. Zh.-D. Transp. [Works of Dnepropetrovsk Institute of Railroad Transport Engineering], 1972, No 126, pp 43-49 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12A153, by E. G. Vol'pert)

Translation: The motion of a Froude pendulum was studied on an experimental installation in which friction was created by a bell pressed against a rotating disc. The bell was coupled to the rod of the pendulum using a frame and lever. The oscillations were measured by a tensometer and recorded by a light-beam oscillograph. High frequency oscillations were detected in the period between release and capture of oscillations. Considerations are presented to explain the appearance of high frequency oscillations by the presence of clearance in the connections. As forces of friction increase, the duration of the high frequency oscillations upon release rises.

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USSR

UDC 911.3:616.9(477)

KRIVOSHEVY, Yu. S., VASILYEVA, V. I., LOZINSKAYA, T. M., RYBAKOVA, I. I.,  
BAKULINA, E. V., and BORSHCHOVA, G. N.

"Complement-Fixing Antibodies in Healthy Human Serum to Mycoplasma --  
Pneumonia and Acute Respiratory Infections"

Sb. tr. Krym. med. in-t (Works of the Crimean Medical Institute -- collection  
of works), 1970, 41, pp 122-125 (from RZh-Meditsinskaya Geografika, No 4,  
Apr 71, Abstract No 4.36.196)

Translation: Serological investigation of 868 healthy humans in various  
rayons of Krymskaya Oblast showed that the agent of mycoplasma pneumonia  
infected 13.3% of the city dwellers studied, 39.2% of country dwellers in  
the northern part of the Crimea, and 19.7% in the southern part. The in-  
fluenza virus Hong Kong A<sub>2</sub> more frequently infected city dwellers, and  
influenza virus B -- rural inhabitants. In the partially isolated col-  
lective, formed a year prior to the study, the prevailing mycoplasma agents  
were pneumonia, Singapore A<sub>2</sub> influenza, type II adenovirus, and respiratory-  
syncytial virus. Two years prior to the research, Hong Kong A<sub>2</sub> influenza  
virus and type III parainfluenza predominated. Adults had significantly  
higher numbers of infections from mycoplasma -- pneumonia, Hong Kong A<sub>2</sub>  
1/2

USSR

KRIVOSHEVN, Yu. S., et al., Sb. tr. Krym. med. in-t (Works of the Crimean Medical Institute -- collection of works), 1970, 41, pp 122-125 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.196)

influenza type and B influenza; and children -- more infection with para-influenza viruses type I and II.

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USSR

UDC 539.3.01

BOROVSKIY, P. V., VERIZHENKO, Ye. P., LISITSYN, B. M.

"Automation of the Solution of Certain Classes of Three- and Two-Dimensional Problems in Elasticity Theory"

Soprotivl. materialov i teoriya sooruzh. Resp. mezhved. nauch.-tekhn. sb.  
(Resistance of Material and the Theory of Structures. Republic Interdepart-  
mental Scientific-Technical Collection), 1972, No. 18, pp 3-7 (from RZh-  
Mekhanika, No 3, Mar 73, Abstract No 3V25)

Translation: The basic elements of a universal algorithm for the approximate analytical computer solution of three-dimensional problems in elasticity theory with a high degree of automation are discussed. The basic algorithm is the defining states method which makes it possible to apply the algorithm in solving a wide range of boundary value problems. The algorithm is considered applicable to a mixed three-dimensional problem for a body having the shape of a rectangular parallelepiped. Authors' abstract.

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1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--INFLUENCE OF THE SURFACE OF THE POLYMERIC PHASE ON THE RATE OF BULK  
POLYMERIZATION OF VINYL CHLORIDE -U-  
AUTHOR-(04)-MARININ, V.G.; BORT, D.N., KALININ, A.I., KARGIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B. 1970, 12(5), 391-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL REACTION RATE, VINYL CHLORIDE, POLYMERIZATION,  
SURFACE PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1229 STEP NO--UR/0460/70/012/005/0391/0395  
CIRC ACCESSION NO--AP0124903  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONCN. OF MONOMER SWOLLEN  
POLY(VINYL) CHLORIDE) PARTICLES IS CONST. DURING BULK POLYMN. THE  
POLYMN. RATE (W) INCREASES WITH INCREASING SURFACE AREA (A). A VS. W  
RELATIONS ARE LINEAR ONLY AT HIGH W VALUES.

UNCLASSIFIED

1/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT71

TITLE--MORPHOLOGY OF SUPRAMOLECULAR FORMATIONS ARISING DURING THE BULK  
POLYMERIZATION OF VINYLIDENE CHLORIDE -U-

AUTHOR--(03)--BORT, D.N., VISHNEVSKAYA, I.N., KARGIN, V.A.

CCOUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(3), 176-9

DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, POLYMERIZATION, VINYLIDENE RESIN,  
ELECTRON MICROSCOPY, NITRILE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FAME--2000/0672

STEP NO--UR/0460/70/012/003/0176/0179

CIRC ACCESSION NO--AP0124344

UNCLASSIFIED



2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124344

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE BULK POLYMN. OF H SUB2  
C:CCL SUB2, IN THE PRESENCE OF (ME SUB2 CCN)SUB2 N SUB2, EVEN AT  
0.1PERCENT CONVERSIONS THE FORMATION OF 2 STRUCTURAL TYPES, GLOBULES AN.  
PLATELETS, WAS OBSO. BY ELECTRON MICROSCOPY.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THERMOPLASTICS FILM WELDER -U-  
AUTHOR--BORTAKOVSKIY, S.YA., ZAYTSEV, K.I. **B**  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 246814  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 21  
DATE PUBLISHED--13NOV69  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--PATENT, WELDING EQUIPMENT, THERMOPLASTIC MATERIAL, PLASTIC  
FABRICATING MACHINERY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FEEL/FRAME--1991/1865 STEP NO--UR/0482/69/000/000/0000/0000  
CIRC ACCESSION NO--AA0111131  
ZZZZZZZZZZ UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0111131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THERMOPLASTICS FILM WELDER IN THREE TIERS (1), WITH SUCKER PLATFORMS (2) AT THE TOP FOR THE FILMS (4) AND SURMOUNTED BY A FRAME (5) WITH HEATERS (6) AND CROSSPIECES (7) FOR GRIPS (8) TO LIMIT THE VERTICAL FRAME TRAVEL. ONE PRESS HEATER FORMING AN OPEN ENDED BOX (11) BETWEEN THE FACE WALLS OF EACH PAIR OF PLATFORMS CARRIES A CONSTANT VOLUME BALLOON (12) WHICH ENSURES EVEN PRESSURE AS PROVIDED ADJUSTABLY BY THE BALLOON (14). IN THE CENTRE TIER IS A TEST FACILITY WITH TWO GRID FRAMES (16) CARRYING SEALING BALLOONS (17) BETWEEN THEIR GUIDE ROLLERS (18). HALIDE LEAK DETECTORS (20) LIE EITHER SIDE OF THE GRIDS AND CAN MOVE VERTICALLY ON THE FRAMES (19). PRESS HEATERS (21) EITHER END OF THE GRIDS ARE FOR THE WELDING AND ARE DESIGNED IDENTICALLY TO THE HEATERS (10). THE BOTTOM TIER FITS THE FOLDING UNIT (22) AND A BUNDLER (23) FOR THE FINISHED FILM PRODUCT. THE FOLDER IS EQUIPPED WITH A RUBBER BALLOON (24) WHICH BEARS RIGHT THE WAY ALONG ON THE BELTS (25) AS DRIVEN OFF THE SHAFT (26). THE BUNDLER HAS A REMOVABLE REEL (27) AND ELECTRIC WIND DRIVE. THE FILM IS PROCESSED IN THE UNIT FROM THE TOP TO THE BOTTOM TIER, USING THE BALLOONS TO CONTROL THE PRESSURE IN WELDING.

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UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THERMOPLASTICS FILM WELDER -U-  
AUTHOR--BORTAKOVSKIY, S.YA., ZAYTSEV, K.I. **B**  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 246914  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 21  
DATE PUBLISHED--13NOV69  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--PATENT, WELDING EQUIPMENT, THERMOPLASTIC MATERIAL, PLASTIC  
FABRICATING MACHINERY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1991/1865 STEP NO--UR/0482/69/000/000/0000/0000  
CIRC ACCESSION NO--AA0111131  
ZZZZZZZZZZZZ UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0111131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THERMOPLASTICS FILM WELDER IN THREE TIERS (1), WITH SUCKER PLATFORMS (2) AT THE TOP FOR THE FILMS (4) AND SURMOUNTED BY A FRAME (5) WITH HEATERS (6) AND CROSSPIECES (7) FOR GRIPS (8) TO LIMIT THE VERTICAL FRAME TRAVEL. ONE PRESS HEATER FORMING AN OPEN ENDED BOX (11) BETWEEN THE FACE WALLS OF EACH PAIR OF PLATFORMS CARRIES A CONSTANT VOLUME BALLOON (12) WHICH ENSURES EVEN PRESSURE AS PROVIDED ADJUSTABLY BY THE BALLOON (14). IN THE CENTRE TIER IS A TEST FACILITY WITH TWO GRID FRAMES (16) CARRYING SEALING BALLOONS (17) BETWEEN THEIR GUIDE ROLLERS (18). HALIDE LEAK DETECTORS (20) LIE EITHER SIDE OF THE GRIDS AND CAN MOVE VERTICALLY ON THE FRAMES (19). PRESS HEATERS (21) EITHER END OF THE GRIDS ARE FOR THE WELDING AND ARE DESIGNED IDENTICALLY TO THE HEATERS (10). THE BOTTOM TIER FITS THE FOLDING UNIT (22) AND A BUNDLER (23) FOR THE FINISHED FILM PRODUCT. THE FOLDER IS EQUIPPED WITH A RUBBER BALLOON (24) WHICH BEARS RIGHT THE WAY ALONG ON THE BELTS (25) AS DRIVEN OFF THE SHAFT (26). THE BUNDLER HAS A REMOVABLE REEL (27) AND ELECTRIC WIND DRIVE. THE FILM IS PROCESSED IN THE UNIT FROM THE TOP TO THE BOTTOM TIER, USING THE BALLOONS TO CONTROL THE PRESSURE IN WELDING.

UNCLASSIFIED

USSR

UDC 621.375.82

BOBOVICH, Ya. S., BORTKEVICH, A. V.

"Experimental Study of the Resonance Effect of the Scattering of Light in Polymethine Pigments"

V sb. Nelineyn. protessy v optike. (Nonlinear Processes in Optics-collection of works), Vyp. 2, Novosibirsk, 1972, pp 166-178 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D872)

Translation: The basic experimental results are presented for the resonance interaction of the radiation of a monopulse and picosecond ruby laser with molecules of polymethine pigments in rigid (vitreified or crystallized at 77°K) matrices. In the case of intense irradiation of the vitreous solutions, a complex spectrum was observed which contained continuous and discrete components. It was demonstrated that the continuous radiation can be identified as the pigment generation band. The discrete lines in the observed spectra belong to the resonance induced Raman emission. Indirect attributes were pointed out by which a number of lines of the resonance induced Raman emission can be considered scattering of the light by the molecules in the first excited singlet state. The hypothesis was stated that some of the observed lines belong to the scattering spectrum at the oscillatory levels of the lower triplet state of the pigment molecules. The bibliography has 18 entries.

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Acc. Nr:

AP0055936

Abstracting Service:

CHEMICAL ABST. 4/70

Ref. Code:

4R0386

116491b Resonance effects of light scattering in cryptocyanine. Bobovich, Ya. S.; Bortkevich, A. V. (USSR). *Pis'ma Zh. Eksp. Teor. Fiz.* 1970, 11(2), 85-8 (Russ). The spectra of cryptocyanine (I), vitrified in glycerol and crystd. out in Me<sub>2</sub>CO, tetrahydrofuran, and HCONMe<sub>2</sub>, in the concns. of  $10^{-6}$ - $0.5 \times 10^{-4}M$ , were investigated. The solns. were frozen at 77°K. The beam of a ruby laser (20 MW) was focused sharply on the sample and the scattered radiation was obsd. by a spectral device with a reciprocal dispersion of 12 cm<sup>-1</sup>/mm. The lines (very narrow for the cryst. matrixes) of various intensities, similar to those found at somewhat higher frequencies in the ir absorption spectrum of I (400-2500 cm<sup>-1</sup>, measured as KBr pellet), were obsd.; a doublet at 604 and 610 cm<sup>-1</sup> was characteristic of all samples. In addn., the generation bands of the dye, the frequencies and characters of which depended on the concn., were obsd. In any case, only the lines reaching the generation band or lying close by it appeared. The spectra obtained are attributed to the resonance stimulated Raman scattering and resonance stimulated Rayleigh scattering of the line branch in electron-excited states of the mols., realized by a nontrivial scheme of the "from above down" transitions. The Stokes broadening ( $\sim 10$  cm<sup>-1</sup>) of the stimulated Raman lines was obsd. at the max. output of the spectra excitation.

J. Moravec

REEL/FRAME  
19841265

Acc. Nr:

AP0050428

Abstracting Service:

CHEMICAL ABST. 5-70 B

Ref. Code:

4R0051

\* 95017j Induced Raman spectra within and near the fundamental absorption bands. Bobovich, Yu. S.; Bortkevich, A. V. (USSR). *Opt. Spektrosk.* 1970, 28(1), 112-15 (Russ). Induced Raman spectra of stilbene, tolan, naphthalene,  $C_6H_6$ , PhCl, MePh, styrene, and  $CS_2$  at liq.-N temps. were investigated. The spectra were excited by the 3471-Å line, with an output of 1 MW (the harmonic of ruby laser). An ISP-66 quartz spectrograph was used. For stilbene, the exciting line is in the region of an absorption band and the compd. luminesces; induced Raman line at  $1590\text{ cm}^{-1}$ , with a relatively low intensity and a high generation threshold, is generated simultaneously. The section of spontaneous Raman radiation, in comparison with the spectrum excited by the fundamental line of the ruby laser ( $6943\text{ Å}$ ), increases  $\sim 10^4$  times owing to the absorption losses of exciting radiation, competition of induced Raman radiation with the luminescence, and possible effect of the 2-photon absorption. Induced Raman lines at  $2925$  and  $1380\text{ cm}^{-1}$  of tolan and naphthalene, resp., have high intensities. The spectra of other compds. consist mostly of 2 or 3 lines, at  $990$  and  $3065$  for  $C_6H_6$ ,  $1005$ ,  $2920$ , and  $3035$  for MePh,  $1000$  for PhCl, and  $990$  and  $1610\text{ cm}^{-1}$  for styrene. Induced Raman spectra of  $CS_2$  as well as of

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CHBr<sub>3</sub>, *o*-C<sub>6</sub>H<sub>4</sub>Cl<sub>2</sub>, *p*-C<sub>6</sub>H<sub>4</sub>Br<sub>2</sub>, biphenyl, bromobiphenyl, 4,4'-  
dibromobiphenyl, bromodimethylaniline, quinoline, anthracene,  
and diphenylpicrylamine were not obtained. A decrease of the  
generation thresholds of induced human lymphocytes and an in-  
crease of transformation coeff. of the radiation owing to the reso-  
nance effect can hardly be reached. Refrigeration to the liq.-He  
temp. may give pos. results.

J. Moravec

MC

2/2  
19810407

1/2 044 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LINE STRUCTURE OF THE SECONDARY LUMINESCENCE SPECTRUM OF VITRIFIED  
CRYPTOCYANINE SOLUTIONS -U-  
AUTHOR-(03)-BORTKEVICH, A.V., BOBOVICH, YA.S., BELYAYEVSKAYA, N.M.  
COUNTRY OF INFO--USSR  
SOURCE--OPT. SPEKTRCSK. 1970, 28(4), 688-94  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS, METHODS AND EQUIPMENT  
TOPIC TAGS--LUMINESCENCE SPECTRUM, GLYCEROL, IR SPECTRUM, LASER  
EXCITATION, RAMAN SPECTRUM, PHOTOGRAPHIC CHEMICAL, IODINATED ORGANIC  
COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0846 STEP NO--UR/0051/70/028/004/0688/0694  
CIRC ACCESSION NO--AP0124511  
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124511

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISCRETE SPECTRA OF SECONDARY LUMINESCENCE OF CRYPTO CYANINE (I) IN VITRIFIED GLYCEROL MATRICES WERE STUDIED AT THE LIQ. N TEMP. AT GREAT DISPERSION. THE IR ABSORPTION SPECTRUM OF I WAS OBTAINED BY PRESSING THE SUBSTANCE IN KBR. BY COMPARING THESE 2 SPECTRA AND ALSO THE RESULTS OF EXPERIENCES IN WHICH THE POSITION OF THE EXCITED LINE OF THE LASER WAS CHANGED BY VARYING THE TEMP. OF THE ROD, THE DISCRETE PART OF THE LUMINESCENCE SPECTRA BELONGED TO THE RESONANCE STIMULATED RAMAN SPECTRA ACCORDING TO THE SCHEME UPPER TO LOWER TRANSITIONS.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--INDUCED PROCESSES OF SCATTERING AND LUMINESCENCE IN CRYSTALLIZED  
SOLUTIONS OF CYANINE DYES -U-  
AUTHOR-(02)-BOBOVICH, YA.S., BORTKEVICH, A.V. *B*  
COUNTRY OF INFO--USSR  
SOURCE--OPT. SPEKTROSK. 1970, 28(3), 474-9  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--DYE, RAMAN SPECTRUM LUMINESCENCE, LASER EFFECT  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0803 STEP NO--UR/0051/70/028/003/0474/0479  
CIRC ACCESSION NO--AP0119710  
UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LASER INDUCED RAMAN SPECTRA OF CYANINE DYES SOLNS. CRYSTD. AT LIQ.,N TEMP. WERE STUDIED. THUS, 1,1 PRIME,DIETHYL,4,4 PRIME,CARBOCYANINE IODIDE (I) AND 1,1 PRIME,DIETHYL,2,2 PRIME,DICARBOCYANINE IODIDE (II) WERE DISSOLVED IN ME SUB2 CO, TETRAHYDROFURAN, AND DIMETHYLFORMAMIDE, RESP., IN CONC. 10 PRIME NEGATIVE6 10 PRIME NEGATIVE4 M. THE POSITION OF THE RAMAN LINES DEPENDS ON THE SOLVENT USED; SOME LINES ARE NOT ONLY SHIFTED BUT ALSO SPLIT. AU ANOMALOUS CONC. SHIFT WAS OBSD. FOR THE EXCITING LINE OF I IN ME SUB2 CO. IN THE MIXED SOLNS. OF I AND II (4:1, 8:1, AND 40:1) IN TETRAHYDROFURAN, ONLY COMPO. II SHOWS VERY STRONG LINES, PROBABLY OWING TO THE COMPETITION OF THE SOLUTES.

UNCLASSIFIED

USSR

UDC 621.039.524:531.781

BORTKEVICH, V. I., MIKHALEV, Yu. K., PRIGOROVSKIY, N. I., and KHURSHUDOV, G. Kh.

"Full Scale Stress Investigations in Reactor Vessels of Atomic Electric Power Stations"

V Sb. "Issled. Temperatur. Napryazheniy" [In the Collection "Investigations of Thermal Stresses"], Moscow, "Nauka," 1972, pp 176-182 (from Referativnyy Zhurnal, No 10, Oct 72. 50. Yadernyye Reaktory. Single Issue. Abstract No 10.50.67)

Translation: Results are presented of tensometric investigations of nuclear reactor vessels of powerful atomic electric power plants. The investigations were carried out during the initial period of operation, they made possible an evaluation of developing stresses and temperatures depending on operating conditions. Characteristics of the state of stress and of the temperature change in the vessel in transient and steady state operating conditions are demonstrated. Recommendations based on results of full scale tensomentering are given for the selection of operating conditions. Three illustrations, two tables.

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USSR

UDC 591.8

BORTNIK, E. M., KRAVTSOV, M. P., BORTNIK, S. M., and MIKHAYLOVA-LUKASHEVA,  
V. D., Gerontology Section, Academy of Sciences Belorussian SSR

"Age-Associated Changes in the Concentration of SH-Groups in the Cortical  
Section of the Visual Analysor in Some Mammal"

Doklady Akademii Nauk BSSR, Vol 14, No 12, 1970, pp 1,138-1,139

Translation: It is known that many substances present in the mammalian body contain SH-groups. Among these substances are proteins, enzymes, some co-enzymes, and low-molecular-weight compounds such as cysteine, homocysteine, selenothioneine, and others. They participate in such important physiological processes as muscular contraction, tissue growth and regeneration, and nervous excitation and inhibition (1-4).

The literature contains scanty data on age-associated shifts in the concentration of SH-groups and the information is contradictory. These investigations were done by various methods with unequal specificity and sensitivity.

Some investigators have demonstrated that in advanced senility, the concentration of SH-groups in the proteins of the cerebral cortex, liver, kidneys, skeletal muscles, and heart of guinea pigs and rats decreased. Other  
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BORTNIK, E. M., et al., Doklady Akademii Nauk BSSR, Vol 14, No 12, 1970, pp 1,138-1,139

researchers have found that the concentration of SH-groups in the cerebrum was greater in old rats than in young rats. However, age-associated shifts in the concentration of SH-groups in different tissues proceed at a different rate as a result of the fact that the process of aging is heterochronous. In view of the importance of SH-groups in oxidative phosphorylation, we became interested in investigating the concentration of SH-groups in the cortical section of the visual analyzer (field 17). As experimental subjects we used newborn dogs, 1 and 6 months old, and 2 and 18 years old as well as newborn rats and 1, 6, 14, and 32-month-old rats. Tissues were fixed in a 1% solution of trichloroacetic acid in 80% alcohol. Protein-bound SH-groups were determined by the method of Barnet and Zeligman.

The concentration of SH-groups was analyzed in the following segments of neurons: cytoplasm, cytoplasmic membrane, processes, nuclear membrane, and nucleolus.

The highest concentration of SH-groups was observed in neurons and surrounding structures in the fourth layer. A smaller concentration of SH-groups was found in the cytoplasm of nerve cell bodies in the second and

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third layers, while the concentration in the star-shaped cells in the fifth layer was greater. Nuclear and cytoplasmic membranes and nucleoli had the highest concentration of SH-groups. The karyoplasm was found to be relatively poor in this substance.

Within one layer, neurites and dendrites had approximately the same concentration of SH-groups.

Investigation of the SH-groups in correlation with age showed that the distribution of SH-groups in the neurons and their processes was different in animals of different ages. The concentration of SH-groups in newborn animals was fairly high, increased at the age of 6 months, was highest in rats aged 14 months and in dogs aged 2 years, and then gradually decreased. Rats aged 32 months and dogs aged 18 years had a small concentration of SH-groups in the neurons and in the surrounding structures. Of special interest was the following observation: the decrease with advancing age proceeded in the reverse order than the previous increase.

Analyses performed on young embryos, newborn animals, and those aged 1 month, 6 months, and more revealed that the SH-groups accumulated first in nuclear and cytoplasmic membranes and then in nucleoli, cytoplasm, and

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karyoplasm. During aging, the concentration decreased first in the karyoplasm, then in the nucleoli, and finally in the nuclear and cytoplasmic membranes.

Thus, this study has revealed that with advancing age, shifts take place in the concentration of SH-groups in the cortical segments of the visual analyzer in rats and dogs. The concentration of SH-groups in neurons is high in newborn animals, reaches a peak in rats aged 14 months and in dogs aged 2 years, and considerably decreases in senility.

The speed of protein regeneration in ontogenesis decreases with advancing age. One of the reasons may be the decreasing concentration of SH-groups in the tissue.

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USSR

UDC 661.3:621.31

B  
BORTNIK, I. M.

"Meeting of the Science Council Section on Theoretical and Electrophysical Problems of Electric Power"

Moscow, Elektrichestvo, No 6, 1970, pp 87-88

Abstract: This is the report of a meeting held on 14-15 January 1970 at the Academy of Sciences of the USSR in Moscow under the chairmanship of Academician V. I. Popkov, by the Section on Electrophysical Processes in Gases Under Pressure. The purpose of the parent section named in the title is to coordinate, discuss and select the chief directions of the major work in the Soviet Union on the mechanism of electrical discharge in compressed gases and the fabrication of high-voltage equipment with gas insulation. Twelve reports were submitted at this session. That of D. V. Razevig proposed a method for computing initial voltages and nonuniform fields of an arbitrary configuration. A similar approach to the problem was made by Dr. Tech. Sciences N. N. Tikhodeyev in his report. N. B. Bogdanova reported on the "Control of the Form of Corona Discharge and the Gap Breakdown Voltage." A report on the change in the discharge mechanism with increased gas pressure was given by G. N. Aleksandrov. I. M. Bortnik, the author of this account, read a paper on "Results of the Investigation of ELEGAS Isolation." Reports given 1/2

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BORTNIK, I. M., Elektrichestvo, No 6, 1970, pp 87-88

by M. I. Sysoyev, V. V. Yakovlev, O. V. Shcherbina, and E. I. Shevtsov were devoted to a description of experimental investigations of discharges in compressed air. Summaries of these and other reports are given.

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